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Integrating social networking technologies in education: a case study of a formal learning environment

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Abstract

The concept of Internet-facilitated social networking is not new – we have evidence of the development of the concept and the technologies over decades. However, Web 2.0 technologies and the emergence of social networking sites has expanded accessibility and use beyond levels that may have been thought imaginable just two or three years ago. These developments have been accompanied with calls to integrate the new technologies and experiences of social networks within formal education. Yet, there is limited research on the potential or outcomes of such initiatives. This paper presents a case study that examines the technology and experience in a formal education context.

1. Introduction

The concept of Internet-facilitated social networking is not new – Howard Rheingold's [1] writings about the WELL community demonstrate that this decades-old phenomena pre-dates the web-based technologies that emerged in the early nineties. However, the development and proliferation of Web 2.0 technologies has meant that the accessibility to and engagement in online social networks has become within reach of millions. Popular press and research literature point to the ubiquity of such social networks sites (SNSs) as MySpace (http://www.myspace.com/) and Facebook (http://www.facebook.com/) citing evidence provided by the services themselves such as "250,000 new registrations per day" (http://www.facebook.com/press/info.php?statistics).

This paper reports a case study that attempts to explore the potential of Web 2.0 social networking technologies to enhance formal learning contexts.

2. Background

Many different instances of social networking sites exist. However, there is much commonality in their technical features. Users of social networking sites can share personal information through their profile, connect with other users of the sites who might be known as contact or friends, upload, tag and share multimedia content that they have created, link others to a variety of web-accessible content, initiate or join sub-sets of user groups based on common interests or pursuits.

It has been argued that these social networking sites facilitate informal learning for the participants. Researchers have analyzed interaction that has taken place in social networking sites and have identified sharing of ideas, providing of peer feedback, and engagement in critical thinking [2]. Certainly there is a well-developed body of literature that supports informal learning [3]. Marsick and Watkins suggest that informal learning is integrated with daily routines; be initiated by either internal or external triggers; is not a highly conscious activity of the learner; may occur by chance; is an inductive process of reflection and action; and, involves learning by linking to others.

The question is whether we can bring together elements of models and evidence from informal learning theory with the observations of current and emerging behaviors in social networking sites to inform formal education. Industry and education commentators and policymakers call for the use of such technologies in schools and universities. There are necessary provisos associated with such directions. The 2008 Horizon Report suggests, "…the challenge faced by the educational community is to seize those opportunities [for use of social networking and other collaborative tools] and develop effective ways to measure academic progress as it happens." (p.5) [4].

To date, research related to social networking and Web 2.0 tools that support social networking is limited. Where the research does exist, much has focused on

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identity, network structures, privacy, and technological issues [5]. This research may inform the potential for use of the concept and the technologies of social networking in education. However, research that is based in an educational perspective is critical if we are to make evidence-based decisions on how to effectively use the technologies and constructs of social networking in formal education settings.

3. Research social networking in education

The relative newness of the research into the use of Web 2.0 social networking technologies to support formal educational experiences necessitates a case study approach. Such methodology allows for investigation of complex social phenomena by the examination of a set of rich data [6].

From the context of significant research in computer mediated communication in educational settings and using constructivist underpinnings, Gunawardena, Lowe, and Anderson put forward a model for phases of learning which occur at both the individual and social level [7]. In the decade since its development, the model has since been applied by a range of researchers investigating educationally focused social interaction facilitated by a range of technologies. The model is comprised of five phases:

1. Sharing/Comparing,
2. Dissonance,
3. Negotiation/Co-construction,
4. Testing Tentative Constructions, and
5. Statement/Application of Newly-Constructed Knowledge.

This model suggests successive stages of increasingly higher mental functions. The model can be, and is most often, used to analyze the discourse and social interaction that occurs among learners in an online environment. However, it can also be used to analyze the learners' perceptions of their learning experience as reported through other data opportunities such as interviews and written reflections. This model was used to investigate the experience of using social networking technologies in a formal learning context.

4. Case: Postgraduate ICTs in Education

A description of the case context is followed by the analysis of the case using the Gunawardena, Lowe, and Anderson model of online social interaction. The case is comprised of a university postgraduate class group (lecturer and students). In presenting this case pseudonyms are used for the student participants.

4.1 Case context

Network-based Learning is an 8-credit point subject offered within a range of postgraduate courses within the specialization of ICTs in Education by an Education faculty in a regional Australian university. These courses aim to help students develop theoretical, empirical and practical knowledge and skills related to how technologies can be used to support teaching and learning in a range of educational contexts. Typically, students enrolled in the course are teachers in K-12 or tertiary sectors, workplace training professionals, and instructional or multimedia designers.

The subject, *Network-based Learning*, places particular focus on how education can be supported by the use of web-based and other networked technologies. The subject has been part of the postgraduate course for a number of years and has evolved to keep in step with evolving pedagogies and technologies of online learning [8].

During the 2007 academic year, 12 students were enrolled in the subject. The majority (n=10) were studying within the specialization of ICTs in Education while the remaining students were focused on Teaching English as a Second or Other Language (TESOL) and enrolled in *Network-based Learning* as an elective. Eight students were located in the area of the Faculty's main campus, three students were located in other Australian states/territories; and one student was located in Southeast Asia.

The subject was delivered fully online other than an optional face-to-face meeting during the first week of the 13-week semester. Students completed three main assessment tasks in which they analyzed case studies of network-based learning to develop their own conceptual models; designed network-based learning activities for an educational context relevant to their profession; and analyzed the weekly online class activities. For each week of the semester, all students were expected to participate in these online activities. Each week focused on a different topic associated with Network-based Learning (e.g., terminology, pedagogies, tools, online communities, re-usability, etc.) and were facilitated using a range of tools such as live chat, discussion forums and wikis hosted within the university's Learning Management System (that also delivered subject content and resources) as well as Web 2.0 tools freely accessible and hosted by external service providers.

4.2 Learning activity in focus

In Week 9, the topic focused on online communications and collaboration. Over a seven-day

period, students were asked to read two journal articles that reviewed the research associated with online collaboration in education. Students were then asked to share their vision of collaboration through a learning activity that involved the use of flickr™.

While flickr™ describes itself as a online photo management and sharing application (http://www.flickr.com/about/), it can most certainly also be catagorised as a social networking site using Boyd and Ellison's [5] definition. Users sign up for free or paid (pro) username and password. Once an account is established the user can set their profile including a screen name and photo. Users can upload and share multimedia content (i.e., photographic images). Users can establish "contacts" with other users through which they can selectively release viewing of their photos and receive updates about their contacts most recent photo activities. When users upload photo they are able to give them a title, tags and link them to a location on a world map. Other users can then post comments about the photos. flickr™ provides other functionality such as the ability to send internal email messages to users and establish groups based on common theme.

Students were provided with information about the website and then asked to: establish a free account if they didn't already have one and explore the functionality and content on the site; take a digital photograph of something that they thought captured the concept of collaboration; upload the photo to flickr™, make it publicly available, add a title, description and tags (at least those that would identify the subject code and the topic of collaboration); search flickr™ for the relevant tags to bring up the gallery of class entries; and, post comments on their classmates photos related to the topic of collaboration.

Within the Learning Management System, the lecturer established a discussion forum thread as a place for students to make comment or ask questions about the activity. Near the end of the semester, this activity was one of the many that students could choose to analyze and reflect upon in their final assessment task.

4.3 Learning activity analysis

Seven participants were involved in the learning activity. The lecturer and four students (Jon, Amy, Liz and Emily) participated during the seven-day timeframe of the learning activity. Two other students (Mike and Lyn) uploaded photos and posted comments after the conclusion of the activity but still within the semester. Of those that participated, only the lecturer and Jon had established flickr™ accounts prior to the start of this activity while the other five students needed to establish an account before proceeding to the activity. Except for Mike, the students established accounts with screen names that were clearly related to both their first name and surname.

The lecturer participated by initiating the activity with a photo and corresponding title, descriptions and tags. The lecturer also posted comments to the students' photos but intentionally limited the comments to social, technical or activity organizational issues so as not to influence the comments of the students. Figure 1 shows the gallery of some of photos shared by the participant on flickr™ during the learning activity.

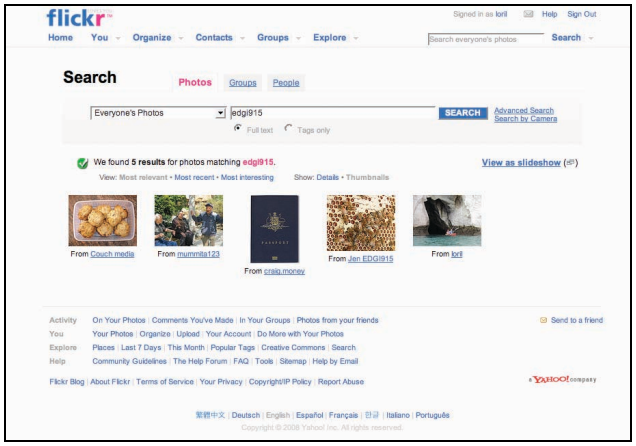

Figure 1: flicker™ webpage with participants' photos.

The photos used by four of the seven participants were connected to their personal lives. Of those, three used photographs they had previously taken during a vacation. Jon went as far as to provide a link to his personal/professional blog in the description of his photo.

For the five photos depicting collaboration that were contributed during the defined week of the learning activity,

The Gunawardena, Lowe, and Anderson model of interaction analysis was used to code the descriptions each participant provided with their own photo and the comments they posted on their classmates' photos.

The first issue to arise in the analysis of the descriptions and the comments was the need for themes or categories that were not related to knowledge construction. Thus, the interaction analysis model was augmented with two codes. The 'technical' code (T) related to comments participants made about the technical issues they were experiencing with using the website. The 'social' code (S) related to off topic comments made by participants which, in most cases,

involved general praise for a their photography. The summary of this analysis is provided in Table 1. Each comment was coded as a whole. Thus, where one code is provided in one cell of the table, it denotes that corresponding participant made one comment on a photo and the comment could wholly be placed in one category of the analysis model. Where there are two codes on one line, the corresponding participant has made one comment but the comment represents two themes. Where there is a code on two separate lines in a cell, the participant has made two comments on a particular photo.

Table 1. Summary of interaction analysis.

	Source of Photo						
Desc/ Comment	L	J	A	Lz	Em	M	Ly
Lecturer	1	S	T	S	S		
Jon	3	1 4	S	S			
Amy	3	3	1	3	3, T		
Liz	3	3	S, 3	1			
Emily		4, S			1		
Mike		S	S		S	1	
Lyn							1

Key:
1. Sharing/Comparing
2. Dissonance
3. Negotiation/Co-construction
4. Testing Tentative Constructions
5. Statement/Application of Newly-Constructed Knowledge

S. Social
T. Technical

The analysis demonstrates that there was much social interaction during the activity. There was also much discussion focused on the topic of collaboration. In the main, this was at the level of *sharing/comparing* ideas and/or *negotiation/co-construction* of ideas related to the topic. Only once, in relation to the photo posted by Jon, did the interaction among the participants move to the *testing tentative constructions* level. The analysis also demonstrates that only one participant (Amy) consistently contributed to the interaction at the higher level of *negotiation/co-construction*.

The comments that were coded to the 'technology' theme related to the difficulties the new users of flicker™ were experiencing with the tagging, searching and viewing functions of the site. The discussion forum thread, within the Learning Management System that was used to delivery the subject website, was used by the participants to explain the problems they were experiencing with flicker™ and work together to develop solutions to address the problems. The sequence of postings between Amy and Liz explained the details of the problem. They had both tagged their photos with the subject code and the word collaboration. However, when they conducted a search of those terms on flicker™, the search results only listed the photos that had been uploaded by the lecturer and Jon. Jon took the initiative to examine the help information on the flicker™ site and found that there was a waiting period for new members' photos to appear in the public search. The lecturer established a group on flicker™ and invited the students to join and contribute their collaboration photo to the group collection. Through this strategy all group members were able to see all photos.

Interestingly, when the interaction analysis model is applied to these postings on the discussion forum, there is evidence of *sharing/comparing, dissonance, negotiation/co-construction, testing tentative constructions, statement/application of newly-constructed knowledge* in relation to understanding the functionality of and how to use the Web 2.0 technology of this specific social networking site. Given the focus of the subject – that is, Network-based Learning – this was an important learning opportunity.

Participants had the option to use their experience in this learning activity within a subsequent analysis and reflection assessment task. In this task, students were to analyze the interactions, identify strengths and weaknesses of the tool (i.e., flicker™), identify strengths and weaknesses of the pedagogical strategy, and suggest recommendations for improvement to both tool and strategy. Analysis of the work submitted by the participants for the assessment tasks reveals their perspectives on the activity, what they felt they learnt from the activity, and what they thought of flickr™ as a technology to support teaching and learning.

Students did feel that they attained some level of learning regarding the topic of focus in the activity – online collaboration. However, they felt this was limited by the fact that only half of the students enrolled in the class participated in the activity.

In terms of their perspectives on the specific technology, the participants identified the frustration of the delay in release of new member photos to the search function. However, they did confirm that they learnt about the technology through using the technology. They also identified a range of ways they could anticipate using flicker™ in their own teaching in K-12, college and training contexts.

5. Discussion and conclusions

The experience of this case points to some interesting teaching, learning and technical issues associated with using Web 2.0 social networking sites to support formal education environments.

In this case, there was some level of cognitive engagement in the topic of collaboration as evidenced by the analysis of the descriptions and comments posted by students on flickr™. Participants who reflected upon this learning activity in a subsequent assessment task further support this finding. Pedagogically, the potential for deeper engagement in the topic may be realized by more closely linking the research-based reading component to the social networking component of this specific learning activity. At a more general level this study suggests the need for further research into pedagogically sound uses of Web 2.0 technologies.

The participants in this case spent some amount of time learning to use the flickr™ website and identifying and solving problems associated with being new users. Given the nature of the subject matter which they were studying – educational technology generally and network-based learning specially – the opportunity to learn about this Web 2.0 social networking technology outweighed the issues of frustration. However, if the nature of the subject matter were different, students many not want to use a technology in their formal learning that may take time to learn. Or, support mechanisms may need to be put in place such that the time to learn is not considered to be a burden.

The blurring of the lines between the personal and professional roles of the lecturer and students is also an issue that is brought about through this case study. Two of the participants in this study were established flicker™ users of many months prior to the start of this educational use of the site. As they choose to engage in the learning activity under their pre-existing username (and not set up one solely for the purpose of this activity) they invited their fellow participants into their world outside of the class context – their personal, 'informal' life. The data from this case is not able to help us draw any specific conclusions about this aspect of the personal and professional. However, it may be considered that integrating the use of open Web 2.0 social networking sites into the formal education setting brings with it a need to explore this further. Research in this area should investigate the professional relationship and expectation implications for teachers and students when they begin to interact in open social networking sites for educational purposes.

The technical difficulties in using the flickr™ website point to an important consideration for the use of Web 2.0 technologies in education. It highlights the need for subject designers and lecturers to put considerable time into planning the use of the Web 2.0 technologies prior to the start of the academic session. It also suggests that lecturers may have to play a considerable technical support role in helping students who are new to such technologies. This is not dissimilar to the late 1990s and beginning 2000s when early-adopting lecturers began to use web-based technologies before their universities adopted Learning Management Systems at a centralized level [8].

Overall, it could be concluded that this experience of using a social networking site in a formal education environment realized positive learning outcomes and experiences for the participants. However, this conclusion should be considered with the appropriate caution, the recognition of the limitations and the need to continue to investigate the issue.

6. References

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